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TWO NEW NEOTROPICAL GENERA OF TREPOBATINAE (GERRIDAE: HETEROPTERA)

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Abstract.—Two new genera and one new species of Trepobatinae (Gerridae) are described from South America. The new genera are compared with other American genera of the subfamily Trepobatinae. The new taxa described are: *Telmatometroides* new genus, monobasic, from estuarine habitats in the eastern tropical Pacific region, type-species *Telmatometra rozeboomi* Drake and Harris 1937; *Cryptobatoides* new genus, monobasic, from small headwater streams near Manaus, Brazil, type-species *Cryptobatoides brunneus,* n. sp.

This is the first of several papers dealing with the subfamily Trepobatinae. The generic names proposed here are needed for other works in progress dealing with classification, faunistics and zoogeography. Much of the material reported here was collected during a recent expedition to South America.

Excluding the two new genera described here, the subfamily Trepobatinae presently contains 13 genera worldwide, 6 of these in the New World. In Table 1 selected salient characters of the American genera are compared, excluding *Metrobates* which stands quite apart from the other genera, possessing a distinctly dorsoventrally flattened body, modified second and third antennal segments, relatively long middle tibia, conspicuous middle and hind leg claws, and a distinct fore-tibial process (cf. Andersen, 1982, p. 237). The subfamily attains its greatest diversity in the tropics of the southern hemisphere, and provides an interesting study in vicariance biogeography. In material collected in Australia and the Malay Archipelago, five additional undescribed genera of the subfamily are recognized and will be treated in forthcoming publications, along with a review of the higher classification of the subfamily.

The disposition of material and types is indicated in the descriptions, and abbreviations for institutions are given in the acknowledgments section. All measurements are in millimeters.

Telmatometroides, new genus
Figs. 1–4

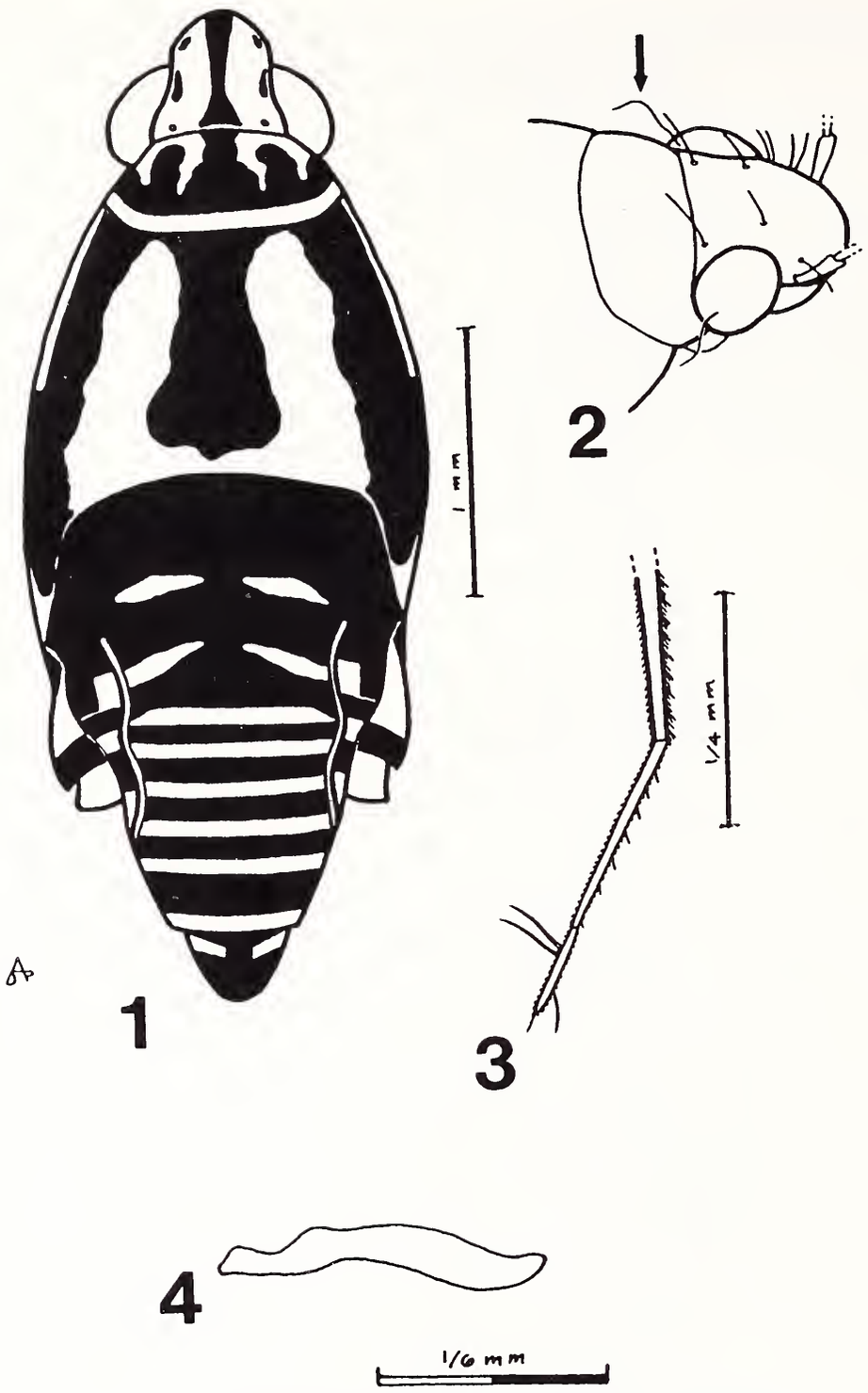
Diagnosis. Telmatometroides is separable from all closely related genera by the extensive black markings on the posterior part of the mesosternum, the row of 5 or 6 short stout black spines on the inner margin of the first segment of the posterior tarsi (Fig. 3), the depressed glabrous median longitudinal fascia on the mesonotum (Fig. 1), and by the lanceolate first gonapophysis (blunt in *Telmatometra*). Other characteristics separating it from *Telmatometra* and other Neotropical genera of Trepobatinae are given in Table 1 (the genus *Metrobates* is quite divergent from the other trepobatine genera and is not included in the table).

Description. (Based on only included species, *rozeboomi.*) Length of body, apterous males 2.8–3.6 mm; apterous females 3.4–3.7 mm; macropterous forms unknown.

Table 1. Generic characters—Neotropical Trepobatinae.

Character	Telm	Telt	Trep	Tret	Cryp	Ovat	Halt
Interocular space/eye width	1.0 to 1.1	1.4 to 1.7	1.3	1.3 to 1.4	1.6 to 1.9	1.4 to 1.6	1.1
Eye shape	elongate	elongate	globular	elongate	appressed	globular	globular
Dark median fascia on head	no	yes	yes	yes	no	yes	yes
Ratio, length, antennal segments III/II	2.2 to 2.4	1.4 to 1.5	1.1 to 1.2	1.2	1.7	1.2	1.4 to 1.5
Ratio, length, antennal segments III/I	1.2 to 1.4	1.1 to 1.2	0.7	0.4	1.1 to 1.2	0.7	0.8
Ratio, length, mid femur/ pro- + mesonotum	1.6 to 2.1	1.3 to 1.5	1.2 to 1.3	1.8 to 1.9	1.1 to 1.3	1.4 to 1.5	2.0
Ratio, length, hind tibia/tarsi	2.1 to 2.8	1.5 to 2.0	1.6	2.6 to 2.8	1.5 to 1.7	1.5	2.3 to 2.5
Male paramere	broad medially	slender, sinuate	falcate	slender, curved	slender, curved	slender, curved	falcate

Legend: Telm, *Telmatometra*; Telt, *Telmatometroides*; Trep, *Trepobates*; Tret, *Trepobatoides*; Cryp, *Cryptobatoides*; Ovat, *Ovatametra*; Halt, *Halobatopsis*.



Figs. 1–4. *Telmatometroides rozeboomi* (Drake and Harris). 1. Habitus, female. 2. Head, dorso-lateral view, showing long ocular setae (arrow). 3. Posterior tarsi. 4. Male paramere.

Ground color leucine to brownish yellow, heavily marked with black (see Fig. 1; also habitus figures in Drake and Harris, 1937 and Kenaga, 1941); black median stripe continuous from fore part of head nearly to posterior margin of mesonotum, interrupted briefly by the narrow posterior pronotal margin; this stripe not of even width, broader posteriorly both on pronotum and mesonotum; pronotum laterally ornamented with black fasciae; broad black stripes along mesopleura coalescing posteriorly; abdominal tergites extensively marked with black; black markings on the middle of the pronotum and mesonotum, and covering most of metanotum and

abdominal tergites II–VII with extensive shining areas; median black area of pronotum depressed. Venter leucine, with median longitudinal black stripe commencing at distal ⅔ of mesonotum, broadening posteriorly, continuous to posterior margin of abdominal sternite VII; this band in females crossed by a transverse black stripe on posterior edge of mesonotum and all of metanotum.

Structural characteristics. Head long, narrowly rounded anteriorly; eyes smaller than in *Telmatometra.* Width much less than interocular space (see Table 1), extending posteriorly along pronotum; ocular setae very long (Fig. 2; see Andersen, 1982, pp. 192–194 for discussion). Antennae long, slender; segment III about 1.5 times as long as II, slightly longer than I. Pronotum short, truncate posteriorly; length on midline of pronotum, 0.40; mesonotum, 0.83; metanotum, 0.47. Abdominal tergites I–VII subequal in length (0.14–0.18), except II longer (0.29). Male anterior femur slightly arched basally, flattened beneath, without spines or other modifications; anterior tibia slightly arched over entire length. Mesosternum without visible omphalium. Pregenital abdomen, genital segments without modifications. Parameres symmetrical, narrow (Fig. 4). Female gonapophysis 1 lanceolate.

Proportions of legs as follows:

	Femur	Tibia	Tarsal 1	Tarsal 2
Anterior	1.37	1.30	0.07	0.43
Middle	1.69	2.99	1.08	0.86
Posterior	2.20	1.15	0.18	0.54

Discussion: Telmatometra rozeboomi was described by Drake and Harris (1937: 358–360, fig. 2b) from a male and female from Panama, with no habitat data given. This taxon remained essentially unknown until recent collections because the type-series resides in the Drake Collection which is not readily available. When Kenaga (1941) revised the genus *Telmatometra* he did not see this species, however he noted that it did not fit his generic description. In Andersen's (1982:422) key to the Trepobatinae this taxon drops at couplet 10. It does not belong in *Telmatometra* or any of the genera that follow, not surprising now that the habitat is known to be marine; all of the closely related genera are known only from fresh water.

Type-species. Telmatometra rozeboomi Drake, C. J. and H. M. Harris 1937, new combination, monobasic.

Etymology. The generic name pertains to the superficial resemblance between this taxon and *Telmatometra.*

Distribution. COLOMBIA (Cauca; Chocó; Narino; Valle de Cauca); ECUADOR (Atacames); PANAMA (Bahia Honda, Pacific side).

Habitat/ecological notes. This species inhabits mangrove swamps in Panama and Colombia. In Colombia, specimens were collected in mangrove swamps having a wide salinity range and various mangrove species, e.g., *Rhizophora* spp., *Avicennia germinans, Laguncularia racemosa, Pelliciera rizophorae* and *Mora megitosperma.* It was collected in accompaniment with various other marine Gerromorphans (detailed in Polhemus and Manzano, in press). In a pond fed by fresh water streams but connected with the Bay of Buenaventura at high tide it was collected along with several freshwater Gerromorphans, e.g., *Brachymetra albinerva* Amyot and Serville, *Mesovelia zeteki* Harris and Drake.

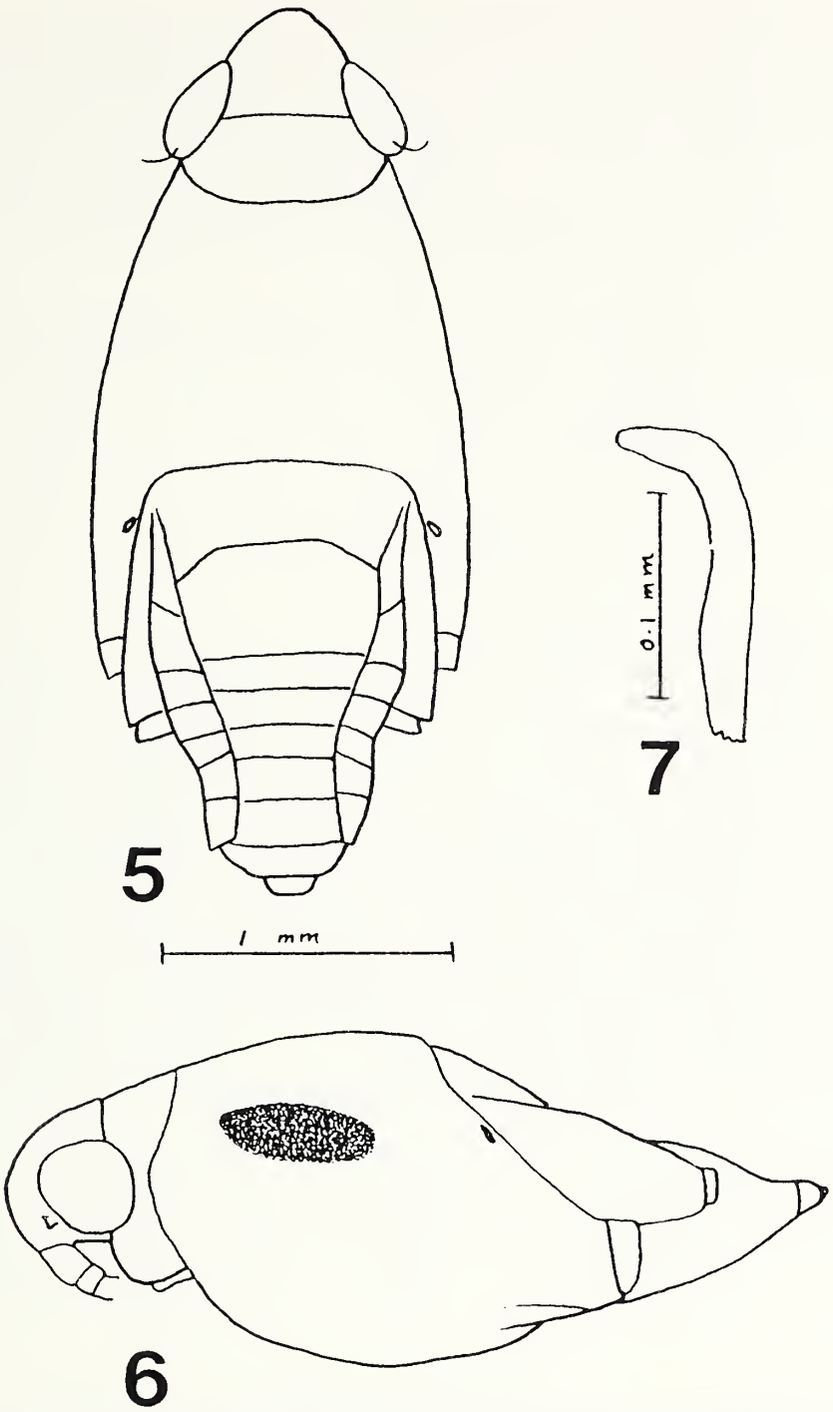
Cryptobatoides, new genus
Figs. 5–7

Diagnosis. Cryptobatoides is most closely related to the genera *Telmatometra* and *Ovatametra* (see Table 1). It differs from both genera in the soft brown ground color without contrasting markings (similar to some *Cryptobates* species), very elongate eye shape (in dorsal view), ratio of the antennal segments, extremely short legs, and by the unique oval lateral brown spot on the mesothoracic pleura of the male. The elongate appressed eyes immediately set *Cryptobatoides* apart from *Ovatametra* which has globular exserted eyes; in *Telmatometra* the eye shape is intermediate between these two genera. *Ovatametra* shares the short legs, but the middle femur is at least 1¼ times as long as the combined midline length of the pronotum and mesonotum, whereas in *Cryptobatoides* it is only slightly longer. In *Cryptobatoides* the third antennal segment is about half again as long as the second, whereas in *Ovatametra* the reverse is true; in *Telmatometra* the third segment is more than 2 times as long as the second.

Description. (Based on the only included species, *C. brunneus,* n. sp.) Apterous form: Length of body, males 2.6–3.0 mm, females 2.9–3.2 mm. Ground color mat yellowish brown to orange brown with brown to blackish brown markings, without pruinose markings. Entire dorsum densely set with very short dark appressed setae. Head laterally weakly embrowned along eyes, otherwise without markings. Pronotum infused with orange posteriorly. Mesonotum of male with an elongate triangular brownish marking anteriorly, posteriorly with a longitudinal dark brown median stripe continuing posteriorly onto abdominal tergite 2, these median markings less pronounced in females; both males and females with a brown sinuate band laterally, males in addition with a sharply defined elongate oval dark brown spot on the upper pleural region (Fig. 6). Dorsum with additional dark markings on metanotum and abdominal tergite 1, connexiva and abdominal tergites very narrowly margined with brown; pleural region broadly brownish. Venter completely luteous except mesoacetabular cleft darkened anteriorly. Legs, antennae brown to dark brown, basally lighter, mid and posterior acetabulae margined with dark brown; coxae, trochanters at least ventrally yellowish.

Structural characteristics. Head long, rounded anteriorly, ventrally flattened; sides rounded along inner eye margins, anteclypeus not prominent; interocular space less than 1½ times eye width; eyes not exserted, elongate, extending posteriorly almost to mesonotum, ocular setae short (Fig. 5); rostrum slender, long, straight, extending almost to middle of mesosternum, with 4 very prominent segments, second shortest and ring-like, third very long, one and four subequal. Antennae moderately long, relatively slender, not sexually dimorphic; segments I and IV of equal length, substantially longer than II and shorter than III. Pronotum short, anterior and posterior margins almost straight, length on midline about ¼ that of mesonotum; width less than head through eyes. Mesonotum long, sides weakly convex, widening posteriorly, anteriorly almost straight and contiguous with pronotal margins, slightly narrower than head. Metanotum indicated by a weak suture laterally, evanescent medially, fused with abdominal tergites 1 and 2. Abdominal tergites 3–6 subequal in length, 7 longer.

Male anterior femur cylindrical, not thickened; tibia weakly broadened and flat-



Figs. 5–7. *Cryptobatoides brunneus,* n. gen., n. sp. 5. Habitus, female. 6. Side view, male. 7. Male paramere.

tened distally, almost as long as fore femur, without apical spur, inner face clothed with short stiff setae; anterior tarsal segment 1 short and cylindrical, segment 2 flattened distally, length of entire tarsus about ⅓ that of fore tibia. Middle femur thickened, much stouter and shorter than mid tibia or hind femur; tarsi long, first segment subequal to length of second. Hind femur relatively short, slightly thickened, about 1.5× as long as hind tibia; tarsi short, segment 1 slightly longer than 2. Claws of fore leg short, narrow, blade-like, almost straight, situated at middle of second tarsal segment, downcurving arolia flattened, as long as claws, dorsal arolia not evident; of middle leg long, very slender, curved, arising near middle of second tarsal

segment, extending to tip of tarsus, arolia not evident, but with a tiny stiff setae extending distally from apex, in addition to the normal long dorsal preapical curved setae; of hind leg preapical, reduced, slender, curved, arolia not evident. Female legs similar to male; middle and posterior legs of both sexes except distal tarsal segments set with short stiff spine-like setae. Pregenital abdomen, genital segments without modifications. Parameres symmetrical, narrow, bent distally (Fig. 7). Female gonapophysis 1 blunt and membranous distally.

Type-species. Cryptobatoides brunneus, n. sp., monobasic.

Etymology. The generic name *Cryptobatoides* refers to the superficial resemblance with some species of the genus *Cryptobates.*

Distribution. Brazil (Amazonas).

Cryptobatoides brunneus, new species
Figs. 5–7

Diagnosis. See generic description.

Description. Length, apterous male 2.87 mm (mean, N = 4; min. 2.63, max. 3.03); apterous female 3.04 mm (mean, N = 10; min. 2.93, max. 3.18). Width, apterous male 1.21 mm (mean, N = 4; min. 1.16, max. 1.26); apterous female 1.35 mm (mean, N = 10; min. 1.26, max. 1.41). Coloration; see generic description.

Structural characteristics. Apterous male (see generic description; only additional details given here). Head length 0.30, width 0.70; eye width (0.20), ⅔ of interocular space (0.30). Pronotum short, length 0.23, width 0.60; mesonotum long, broad, sides weakly convex, length 0.83, width 0.98; metanotum length 0.30, width 0.60, fused with first two abdominal tergites, all well indicated except medially, tergite 1 length 0.15, tergite 2 length 0.18; abdominal tergites III–VI equal in length (0.10), 7 longer (0.13). Length of antennal segments I–IV, 0.45: 0.35: 0.55: 0.45.

	Femur	Tibia	Tarsal 1	Tarsal 2
Anterior	0.75	0.70	0.05	0.20
Middle	1.18	2.00	0.68	0.75
Posterior	1.38	0.85	0.33	0.25

Abdominal terminalia not modified; paramere as shown in Figure 7.

Apterous female. (See generic description; only additional details given here.) Structure and coloration mostly as in male, except slightly larger and more robust; antennae and legs similar to male; abdominal tergite VIII directed slightly ventrad, broadly notched posteriorly, embracing proctiger.

Macropterous male. Length of body 2.78 mm, to tip of wings 3.79 mm, width 1.16 mm. Similar to apterous male in coloration and other structures except the longer (1.21) and wider (1.01) pronotum. Fore wing dusky gray brown, with two closed cells basally, a transverse line of weakness at basal ⅓, very similar to that of *Trepobates taylori* (Kirkaldy) (see Andersen, 1982:215, fig. 428). Hind wing infuscated, with one closed cell basally, the cross vein at basal ¼, similar to the trepobatine wing illustrated by Andersen (loc. cit., fig. 429) except the cross vein is more basally located.

Macropterous female. Length of body 3.08–3.18 mm (all specimens dealated), width 1.26–1.31 mm. Similar to macropterous male in structures and coloration. The pronotum is translucent posteriorly revealing the dark wing bases folded beneath,

which gives the appearance of a posterior dark band, particularly in alcohol specimens. Pronotum longer (1.26) and wider (1.11) than apterous form.

Discussion. This species vaguely resembles the smaller *Telmatometra* species, but lacks the contrasting markings of those taxa. In general facies it more closely resembles *Cryptobates obscurus* Miyamoto from Borneo.

Etymology. The name *brunneus* refers to the soft brown coloration without prominent markings.

Habitat data. This species was collected only in small streams (Igarapés) in the seasonally dry rain forest near Manaus. These water striders are not strong skaters, thus they are found only in still pools in the forest or along the sides of streams. On one occasion at the type locality, a specimen was observed producing concentric ripples on the surface of the water, apparently communicating with congeners in a manner described by Wilcox (1972) for *Rhagadotarsus* species (Polhemus 1990).

Holotype. Apterous male: BRAZIL, Amazonas: Small blackwater stream in primary rain forest at INPA Forest Management Station, 98 km NW of Manaus, 90 m, water temp. 25°C, VIII-29-89, CL 2477, J. T. and D. A. Polhemus (INPA).

Paratypes (all apterous unless otherwise noted; all collected by J. T. and D. A. Polhemus, and R. T. de M. Sampaio). BRAZIL, Amazonas: 30 males, 2 macropterous male (dealated), 30 females, 11 nymphs, same data as type; 9 apterous males, 1 macropterous male, 7 apterous females, 2 macropterous females (dealated), small blackwater trib. to Rio Cuieras, Reserva Biologia de Campina, off Hwy. 174 at km 62, N of Manaus, 100 m, water temp. 23.5°C, pH 3.2, VIII-23-89, CL 2468; 43 males, 1 macropterous male (dealated), 43 females, 29 nymphs, Igarapé de Anta, 2.5 km E of INPA Reserva Ducke HQ, 25 km NE of Manaus, 60 m, water temp. 24.5°C, VIII-25-89, CL 2472; 29 males, 37 females, 7 nymphs, Igarapé Barro Branco, at INPA Reserva Ducke HQ, 50 m, water temp. 23.5°C, pH 5.6, VIII-27-89, CL 2475; 8 males, 10 females, 8 nymphs, small clear rainforest stream near INPA A. Egler Reserve, 70 m, water temp. 24.5°C, VIII-30-89, CL 2479; 2 males, 1 macropterous male (dealated), 1 female, 1 nymph, small stream in primary rainforest near INPA viewing tower along road to INPA Forest Management Station, 90 m, VIII-29-89, CL 2478 (JTPC, ZMUC, INPA).

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